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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of E. BENAZZI

Serial No. 09/103,528 Group Art Unit : 1764

Filed: June 24th, 1998 Examiner: Walter Dean GRIFFIN

For : EU-1 ZEOLITE CATALYST AND A PROCESS FOR IMPROVING THE POUR POINT FEEDS CONTAINING PARAFFINS

DECLARATION UNDER 37 C.F.R. § 1.132

Honorable Commissioner
of Patent and Trademarks
Washington, D.C. 20231

Sir :

I, Germain Martino, duly warned, declare and say as follows:

THAT, I am a French citizen; that I graduated from "Faculté des Sciences de l'Université de Strasbourg" (France) in 1961; that I obtained an Engineer Diploma from "Ecole Nationale Supérieure de Pétrole et des Moteurs" Rueil-Malmaison (France) in 1963; that I was received as a Doctor by "Université de Louvain" (Belgium) in 1965; and that I now reside in 78300 Poissy (France), 80 avenue Fernand-Lefebvre;

THAT, I was hired by "Institut Français du Pétrole" Rueil-Malmaison (France) in their Research Department to research on catalytic agents and catalytic reactions in May 1967; that, from January 1985 to September 1989, I was Manager of the Kinetics and Catalysis Research Division; that, from September 1989 to December 1997, I was Assistant Manager of the whole Refining and Petrochemical Technology Business Unit; and that since then I have been Manager of said Refining and Petrochemical Technology Business Unit.

THAT, I am familiar with the zeolitic catalysts and catalytic processes.

I declare further:

EXAMPLE 7: Preparation of catalyst C7 not in accordance with the invention

The starting material was a ZSM-50 zeolite prepared in accordance with Example 6 of US 4,640,829, with a global Si/Al atomic ratio of 64, containing sodium (dibenzyldimethylammonium chloride as directing agent).

This ZSM-50 zeolite first underwent dry calcining at 550°C in a stream of dry air for 18 hours. The solid obtained underwent four ion exchange steps in a solution of 10 N NH_4NO_3 at about 100°C for 4 hours for each exchange step. The solid obtained was designated as NH_4-ZSM-50 and had an Si/Al ratio of 66 and an Na/Al ratio of 0.003. The remaining physico-chemical characteristics are shown in Table 3.

TABLE 3

Sample	Adsorption	
	S_{BET} (m^2/g)	V(P/P_0=0.19) ml liquid N_2/g
NH_4-ZSM-50	315	0.17

The NH_4-ZSM-50 zeolite was mixed with SB3 type alumina from Condéa. The mixed paste was extruded through a 1.4 mm die. The extrudates were then dry impregnated with a solution of a mixture of ammonium heptamolybdate, nickel nitrate and orthophosphoric acid, and finally calcined in air at 550°C, in-situ in the reactor. The amounts by weight of active oxides were as follows (with respect to catalyst C7 thus prepared):

5.3% by weight of phosphorus oxide P_2O_5

14.95% by weight of molybdenum oxide MoO_3;

2.8% by weight of nickel oxide NiO.

The amount of ZSM-50 zeolite in the whole of catalyst C7 was 70%.

EXAMPLE 8: Evaluation of catalyst C7

Catalyst C7 prepared as in Example 7 was evaluated for hydroizomerisation of a hydrocracking residue from a vacuum distillate.

The feed and the catalytic test unit had the characteristics described in example 6.

The reaction took place at 330°C at a total pressure of 12 MPa, an hourly space velocity of 1.1 h^{-1} and at a hydrogen flow rate of 1000 litres of H_2 per liter of feed.

The characteristics of the oil obtained after hydroisomerization are shown in the following table:

Viscosity index VI	117
Pour point (°C)	-17
Oil/feed yield (wt %)	75

Compared to catalyst C3 (EU-1 based), catalyst C7 (ZSM-50 based) is less effective for reducing the pour point of the initial feed.

The undersigned declares further that all statements are made herein of his own knowledge are true and that all statements made on information and belief are believed to be true ; and further that these statements are made with the knowledge that willful false statements and the like so made were punishable by fine or imprisonment, or both under Section 1001 Title 18 of United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Germain Martino

Rueil, April 9, 2003

Germain MARTINO